# 1991
# ATLANTIC SALMON SPORT FISHERY
# (CATCH AND EFFORT STATISTICS)
# FOR
# NEW BRUNSWICK

prepared by

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CONTENTS


INTRODUCTION . . . . . 1

- Licence Sales and Angling Effort . . . . . 1
- Angling Resource . . . . . 1
    1. The Spring (Kelt) Season . . . . . 4
    2. The Early Bright Season . . . . . 4
    3. The Late Bright Season . . . . . 4

METHODS . . . . . 5

RESULTS & DISCUSSION . . . . . 7

- Overview of Catch and Effort Since 1983 . . . . . 7
    Kelt Season . . . . . 7
    Bright Seasons . . . . . 7

- The 1991 Angling Season . . . . . 7
- Special Angling Season . . . . . 9
- 1992 Angling Season . . . . . 9
    Effect of Past Conservation Activities . . . . . 9
    Influence of 1991 Newfoundland Commercial Fishery . . 9
    Effect of 1992 Newfoundland Commercial Closure . . 10

REFERENCES . . . . . 11

APPENDIX A (TABLES 1-9) . . . . . 12

# INTRODUCTION

## Licence Sales and Angling Effort

Resident and nonresident salmon licence sales for 1991 totalled 33,040, seven percent less than in 1990 (Table 1). Few adult Atlantic Salmon were present in New Brunswick rivers during warm, low waters in July and August, discouraging anglers from purchasing licences. Miramichi rivers support over sixty percent of New Brunswick's Atlantic salmon effort, St. John rivers about 23 percent and Restigouche rivers 13 percent. New Brunswick salmon anglers have fished about 200,000 rod-days annually since 1989 (Table 2).

## Angling Resource

Atlantic salmon angling occurs on 106 rivers contained within 31 drainages in New Brunswick; about 70 rivers produce angler catches in consecutive years (Figure 1). Anglers fish for two types of adult Atlantic salmon:

a) small (up to 2.2kg) salmon known as "grilse" are usually 63 cm in length or less; these fish have overwintered one year in the sea. Many grilse travel to and feed east of Grand Banks off eastern and southern Newfoundland as well in Labrador Sea waters. Many grilse overwinter in ocean waters off eastern and southern Newfoundland. (Figure 2 - shaded areas).

b) large (3.6kg or heavier) salmon are 75cm or longer in length; these salmon have wintered two, three or four or more winters at sea and hence are known as multi-sea winter (MSW) salmon. MSW salmon may exceed 23kg (50 pounds) in weight, but most are 3.6 to 5.5kg (after two winters in the sea) or 7.7 to 10.5kg (after three winters in the sea). Many MSW salmon feed in coastal waters off West Greenland during late summer and early fall during their second year at sea (Figure 2 - see shaded area adjacent West Greenland). MSW Salmon that have previously spawned are known as "previous spawners" regardless of the elapsed time since their initial spawning.

Anglers have been required since 1984, to release MSW salmon which are predominantly female; their release is intended to maximize and maintain the regenerative capacity of wild salmon resources in all New Brunswick rivers.

Three angling seasons are recognized by anglers and fisheries agencies:

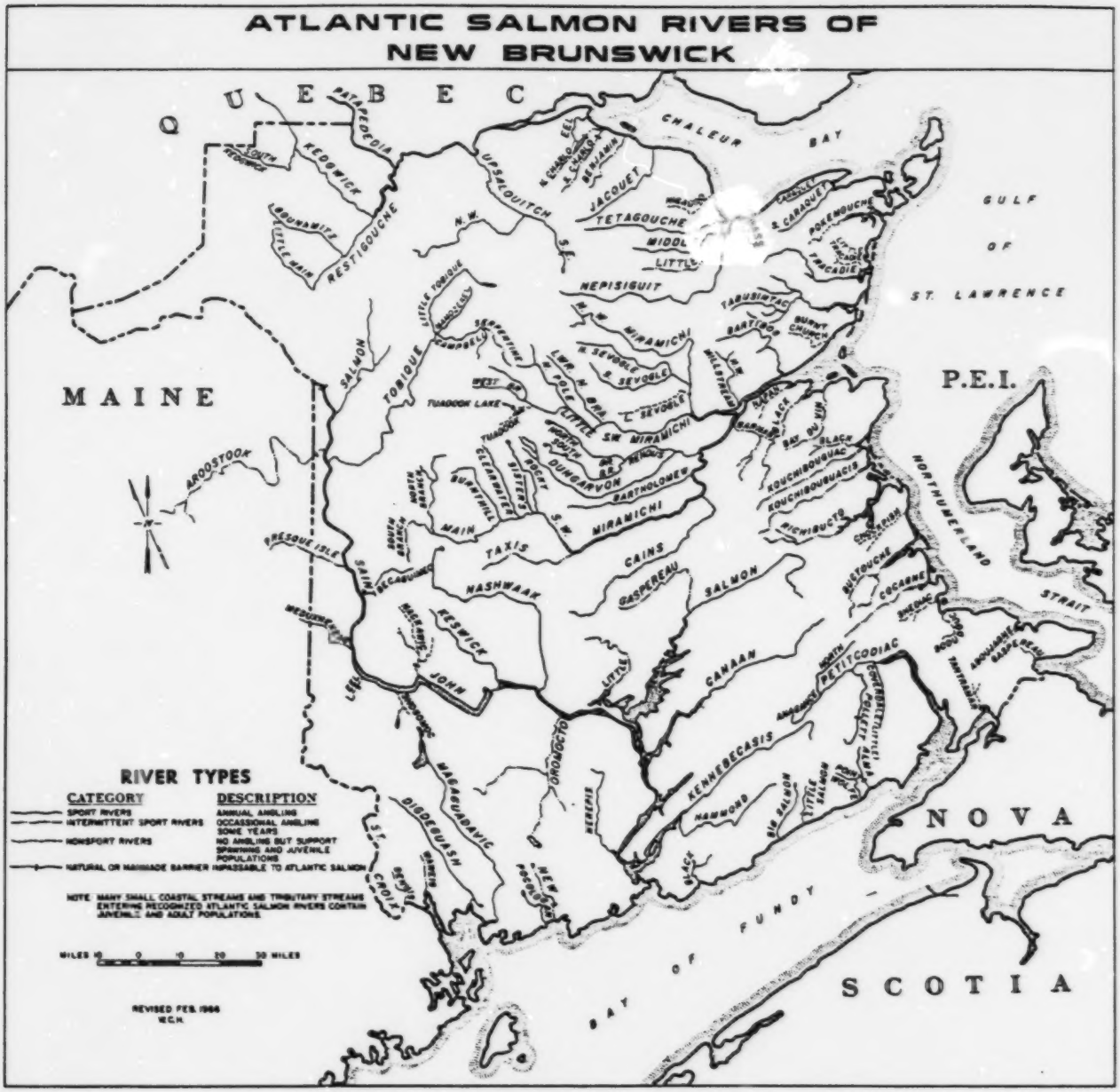


Figure 1: Rivers providing Atlantic salmon angling opportunities in New Brunswick

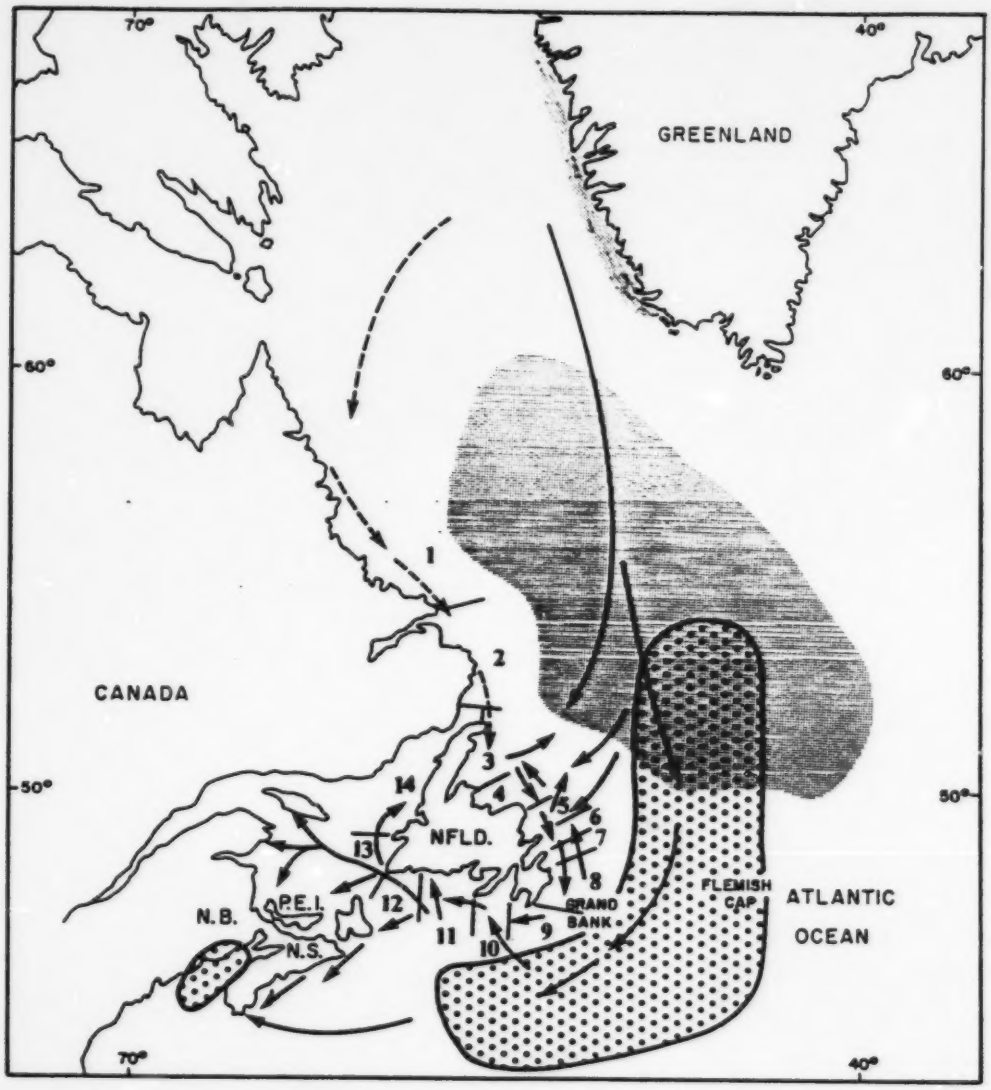


Figure 2. Migration routes for Atlantic salmon from West Greenland, and overwintering areas and return routes to rivers in North America (from Reddin, 1988). Solid arrows in shaded area indicate migration areas of overwintering immature fish in late summer and fall; broken arrows indicate movement of some stocks (Bay of Fundy & Gulf of Maine?) in late summer, autumn and early winter. Solid arrows adjacent Newfoundland and Mainland coast indicate movement of maturing Atlantic salmon on route to their natal streams. Dotted area may represent wintering areas of small and large immature salmon. Shaded area shows known summer and early fall feeding areas. Newfoundland and Labrador Salmon Fishing areas (SFA's) 1-14 are identified by numbers.

1. The Spring (Kelt) Season commences April 15 and terminates May 15. A large percentage of grilse and MSW salmon overwinter in some rivers after spawning in October or November. These fish are angled in the lower reaches of some Miramichi rivers, the Tabusintac, Tracadie, Bartibogue, Nashwaak and St. John rivers as they migrate downstream to ocean waters. In recent years about eight percent of the spring (kelt) grilse in Miramichi rivers return to feed in ocean waters for several months, returning as reconditioned "bright" grilse; about 16 percent of the Miramichi's MSW spring (kelt) return as reconditioned "bright" MSW salmon. These "consecutive year spawners" do not appreciably increased in size over the previous year even though they are one year older.

   Most spring (kelt) grilse and MSW salmon spend one or two additional years at sea before returning as much larger MSW salmon. In 1990, 9 percent of the Miramichi's total adult returns were previous spawners. Thirty eight percent of total MSW returns had previously spawned as MSW salmon (Moore, 1991). Repeat spawners have contributed a substantial portion of the total egg deposition to many New Brunswick rivers since 1988.

   Spring or kelt season angling catches are positively correlated ($r^2$=67%) with abundance of the previous years spawning fish, especially late season (September 1 - October 21) MSW salmon (Hooper, 1989).

2. The "Early Bright" Salmon Season begins early June when early run stocks of Atlantic salmon return from the sea and ascend New Brunswick rivers and ends August 31st. Peak migrations and angling occur mid-June to mid-July, but some fish, especially grilse, enter the rivers in August if river water temperatures are suitable (<22°C). Early bright season anglers, utilize dry and wet fly techniques. Most anglers experience higher catches per effort using wet fly techniques during the late season when waters are cooler (<16°C) and salmon runs are more "concentrated" over a 3 to 5 week period. Early bright run Atlantic salmon usually spawn in headwater reaches of rivers.

3. The "Late Bright" Salmon Season begins September 1 and extends for some rivers until October 21. There is some evidence upstream migrating Atlantic salmon in September and October represent separate stocks which "oversummer" in estuarial waters (Belding, 1938 and 1939). Late run stocks usually spawn in the lower reaches of rivers as well as smaller tributaries entering the lower reaches of rivers. Anglers fish late run stocks up to one week before spawning. Late run stocks declined substantially in 1968 until 1986 due to excessive commercial fishery exploitation. Since 1986 runs have improved somewhat providing about one-third of the effort and catch for bright fish.

## METHODS

Atlantic salmon angling catch and effort are annually estimated from a mail survey sample directed at 25% of the licensed salmon anglers (Figure 3). Second reminders and/or telephone calls are utilized to prompt responses from delinquent sampled anglers. Non-responding anglers are assumed to have proportionate angling success as respondents, based on a previous sampling study (Hooper, 1989). A microcomputer system is utilized to compile and error check data as well as provide output catch and effort statistics.

Preliminary estimates of catch and effort were undertaken utilizing only first mailing responses from sampled anglers in an attempt to provide catch and effort estimates several weeks prior to availability of final estimates.

A previous report describes sampling, data collection procedures and output results utilizing various sampling schemes (Hooper, 19896).

(1991) 2081-00

New Nouveau Brunswick

DEPARTMENT OF NATURAL RESOURCES AND ENERGY
FISH AND WILDLIFE BRANCH

Dear Salmon Angler:

Please send us your 1991 angling effort and catch on the prepaid information card. If you have already submitted this information our sincere thanks.

If you fished the Miramichi River, use a letter code (A, B, or C) to name the specific branch:

| Code | Miramichi Branch |
|---|---|
| A | Southwest Miramichi |
| B | Northwest Miramichi |
| C | Little Southwest Miramichi |

Please be certain to include all your fishing days and catch including those for Crown Reserve, Crown Leases, Private waters as well as for Quebec waters on the Main Restigouche River.

Thank you for your service to Atlantic Salmon Conservation.

Director

## 1991 N.B. ATLANTIC SALMON ANGLER RECORD

| A | Total Days You Fished Atlantic Salmon | |
|---|---|---|

**B — RIVERS FISHED**

| Office Use Only | River | Month | No. Days |
|---|---|---|---|
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

**C — FISH CAUGHT**

| Office Use Only | River | Mo. | Day | No. of Gnise Kept | No. of Gnise Released | No. of Salmon Released |
|---|---|---|---|---|---|---|
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | Totals | | | | | |

Please use reverse side if you require additional space to record your catch.

Figure 3: Mail survey questionnaire utilized to assess angling effort and catch for the 1991 Atlantic salmon angling season.

## RESULTS & DISCUSSION

### Overview of Catch and Effort Since 1983

A large increase in 1990 angler effort resulted when (1) in 1989, 15,000 resident trout anglers were encouraged to purchase, for $5.00 more, an Atlantic salmon licence and (2) the 1990 summer closures of several large northern New Brunswick industries provided thousands of people more time to angle.

Kelt Season angling success increased substantially from 1983 (0.81 catch per rod-day) until 1989 (3.53 catch per rod-day) as did total catches for grilse and MSW salmon (Table 3). Angling success declined to pre-1984 levels in 1990 and 1991 due to fewer returning MSW salmon and grilse in 1989 and 1990. Angling pressure during the kelt season doubled since 1989, the result of more resident angling. Kelt angling effort may increase in the next few years as more residents discover this high quality fishery through sportsman's magazine literature.

Bright season angling effort declined from 178,000 days in 1983 only to 100,000 angler days in 1985 the result of previous poor angling success by resident anglers in 1981-1984 and the 1984 requirement for anglers to release MSW salmon (Table 3). The New Brunswick commercial fishery closure as well as Newfoundland commercial fishery restrictions in 1984 resulted in increased grilse and MSW salmon populations in New Brunswick rivers until 1989, whereafter returning grilse and MSW salmon (especially maiden fish) populations decreased to minimum or below minimum spawning population levels. During the past five years Atlantic salmon "post smolts" appear to be experiencing high sea mortality several months after leaving their natal rivers as smolts. Low sea water temperatures maybe responsible for causing a much higher predation by birds, fish and/or mammals at sea (Ritter, 1989, Scarreccia, 1983 and 1984). Fortunatelly, since 1990, alternate year or consecutive year previous spawners have comprised a large percentage of the MSW salmon populations for New Brunswick rivers. Most St. John and Restigouche rivers have received insufficient spawning returns despite increases in repeat spawners. Angler return of MSW salmon remains necessary to help achieve minimum egg requirements for most New Brunswick rivers.

### The 1991 Angling Season

1. Spring (Kelt) Season (April 15-May 15): The S.W. Miramichi, Little S.W. Miramichi and N.W. Miramichi support nearly all of the Province's spring angling. Only the Tabusintac and Bartibogue rivers offer other consistent kelt angling fisheries. A disappointing 1990 late run of bright grilse and MSW salmon during unusually high water conditions in April, 1991, reduced kelt catch to only 5400 fish, about one-half of

the previous years catch (Table 4). The 1991 catch was the lowest since 1984.

2. Early Bright Season (June 1 - August 31): Miramichi and main Restigouche River grilse and MSW salmon angler catches were only one-half 1980 catches. St. John River catch was similar to 1990. Poor sea survival of postsmolts during the first several months at sea may also be responsible for lower commercial catches in Newfoundland (Table 5) and Greenland (Tables 6) as well as angling catches in most Atlantic Canada and Quebec rivers.

   Eastern Bay of Fundy rivers, especially Big Salmon River, have also received disappointing Atlantic salmon returns responsible for poor angling since 1986. Poor overwinter sea-survival of postsmolts is again suspected as stream juvenile populations are near habitat carrying capacities. Eastern Bay of Fundy river (e.g. Big Salmon River) postsmolts do not travel to Newfoundland or Greenland waters, feeding and overwintering in or near Bay of Fundy waters (Figure 2).

3. Late Bright Season (September 1 - October 21): Most late season angling occurs on the lower reaches of the Miramichi rivers, the Bartibogue, Tabusintac and St. John rivers. For 1991, anglers caught 2600 less late-run grilse and 1,000 fewer MSW salmon than in 1990. St. John rivers, excepting the Hammond River, produced only poor to fair angling in 1991. Hatchery stocking of Hammond River origin parr in the Hammond River may have contributed at least 15 percent of the angler catch in 1991 (Blenus, 1992).

Special Angling Statistics for 1991

1. St. John River Above/Below Mactaquac Dam: Twice as much angling effort produced three-fold more bright season fish below, as above, Mactaquac Dam in 1991 (Table 7). Most grilse and MSW salmon approaching the dam are captured, transported released in the St. John River above the impoundment or in two upstream tributaries, the Aroostook or Tobique rivers. The majority of adult fish returning to Mactaquac dam are Tobique River or hatchery origin fish.

2. Preliminary vs. Final Catch and Effort Estimates: Final effort estimates were only 17,000 angler days higher than preliminary estimates; final grilse catch estimates were 2,000 larger and MSW salmon catches 1,000 fewer than preliminary estimates (Table 8).

## 1992 Angling Season

### Effect of Past Conservation Activities:

Several important conservation measures were implemented in 1984 to improve spawning escapement and subsequently restore Atlantic Salmon populations in New Brunswick rivers:

- New Brunswick commercial salmon ban
- Closure of Newfoundland's Salmon Fishing Area 12 (Figure 2)
- Two week delay of Newfoundland commercial salmon season to June 5
- Hook and release regulation for angler caught MSW salmon

As a result, thousands more additional MSW salmon and grilse ascended New Brunswick rivers compared with previous years, until 1990. The Greenland commercial fishery had quota restrictions implemented in 1976, although since 1987, this fishery has not achieved quota allowances (Table 6). Greenland commercial fishermen may not be fishing as intensly as past years due to very low prices for salmon (about $1.60/lb); fish buyers apparently prefer the more expensive, fresh and sized quality controlled aquaculture salmon. Also, stock abundant at Greenland is lower compared with abundances in the 1970's and most of the 1980's.

New Brunswick's returning adult salmon populations declined substantially in 1990 and 1991, the first years a "comeback" was expected from increase spawning allowed by the 1984 angler and commercial regulations. Some biologists suspect abundance decrease, in addition to high early postsmolt mortality, may also be influenced by "shrinking" overwintering habitat influenced by colder northern waters and/or warmer southern waters.

### Influence of 1991 Newfoundland Commercial Fishery:

Long lasting spring and early summer ice conditions in 1991 may have been partially responsible for reducing the Newfoundland commercial quota/allowance of 690 metric tonns to only 434 metric tonns (Table 9). As a consequence, New Brunswick rivers in 1991 may have received a few thousand additional grilse and several hundred MSW salmon escapement from Salmon Fishing Areas (SFA's) 13 and 14 and SFA's 10 and 11 commercial fisheries (Figure 3) Salmon Fishing Areas 4 - 11 are thought to be less important interception fisheries for returning maturing salmon on route to New Brunswick, Nova Scotia and Quebec rivers salmon (Pippy 1982).

Commercial salmon fisheries in SFA's 2 and 3 may capture up to several hundred thousand small (grilse sized) fish, many destined to be MSW salmon one year later. In Salmon Fishing Areas 1-4, 1991 commercial harvest was only 65,000 small (less than 2.3 kg) salmon and 27,000 MSW salmon (Table 9) about one-half the previous year's catch. Some additional surviving stocks may have migrated through

to the Labrador Sea and/or Greenland waters where they were and subjected to an August to October 1991 commercial fishery. The 1991 Greenland fishery did catch considerably more fish, perhaps with less effort than in 1990 or 1989 (Table 6). Greenland salmon catches are generally positively correlated with MSW salmon catches one year later, indicating a better catch year in 1992 for MSW salmon. Consequently, New Brunswick rivers may realize improvements in MSW salmon returns (up to 10,000-20,000 fish) in 1992.

Effect of 1992 Newfoundland Closure for N.B. Rivers:

The closure of insular Newfoundland's commercial fishery in 1992 may provide an estimated additional 10,000 MSW salmon returns, primarily from SFA's 3-4, to New Brunswick rivers. The largest MSW salmon returns to New Brunswick rivers will be in 1993 from 1992's non-exploitation of small salmon in SFA 3 and, perhaps, reduced exploitation in SFA's 1 and 2, pending commercial buy-outs in 1992.

Grilse populations in New Brunswick rivers may increase about 30,000 in 1992 as a result of the commercial closures in SFA's 3 through 14 with Miramichi rivers receiving the majority of fish. Restigouche and Nepisiguit rivers may realize a smaller grilse increase. St. John river grilse stocks receive considerably less exploitation by eastern and southern Newfoundland commercial fisheries than Miramichi and Restigouche stocks. Little or no increase for St. John grilse stocks is anticipated for 1992.

It has proven difficult for biologists to predict quantities of returning grilse and MSW salmon to New Brunswick rivers especially when accounting for the recent poor marine survival and unknown native Indian exploitation. Assuming 1992 adult returns will have experienced similar poor sea survival as fish in the past two years, St. John Rivers should not realize an appreciable increase in grilse or MSW salmon until 1993, i.e., 1992 angling success will be similar to 1991 when 8500 grilse and 5500 MSW salmon returned to the river. Miramichi salmon populations may increase by 20,000 grilse and 15,000 MSW salmon; in 1991, DFO estimated about 61,000 grilse and 29,000 MSW salmon returned to Miramichi rivers. Miramichi angling in 1992 should improve substantially over 1991. For 1992, Restigouche rivers may experience only a slight increase in grilse over 1991, but perhaps as high as 5,000 additional MSW salmon providing for somewhat better angling than in 1991, a poor to "barely fair" angling year when about 12,000 MSW salmon and 8000 grilse entered Restigouche drainage rivers. Any increases in native Indian net fisheries in 1992 will substantially reduce angler catch and spawning escapement of Atlantic salmon adults below 1991 levels.

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# APPENDIX A

## TABLES 1 - 9

TABLE 1: Resident and Non-resident Atlantic Salmon licence sales, 1986 - 1991

| Licence | 1986 No. | 1987 No. | 1988 No. | 1989 No. | 1990 No. | 1991 No. |
|---|---|---|---|---|---|---|
| Resident | 14,884 | 15,300 | 16,099 | 29,553 * | 28,923 | 26,739 |
| Non-Resident | 4,867 | 5,202 | 5,767 | 6,547 | 6,750 | 6,301 |
| TOTAL | 19,751 | 20,502 | 21,866 | 36,100 * | 35,673 | 33,040 |

* Note: Increased resident sales due to introduction of a $10.00 trout licence which for only $5.00 more residents could purchase a salmon licence.

TABLE 2. Total angling effort (rod days) for Atlantic salmon on New Brunswick rivers, 1986-1991

| River | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 |
|---|---|---|---|---|---|---|
| Main Southwest Miramichi | 35,491 | 39,092 | 47,171 | 43,058 | 79,368 | 67,003 |
| Little SW Miramichi | 11,005 | 8,410 | 10,937 | 8,618 | 15,164 | 13,526 |
| Northwest Miramichi | 10,203 | 11,511 | 11,265 | 10,806 | 19,413 | 19,564 |
| Sevogle | 5,071 | 3,718 | 3,718 | 3,395 | 4,188 | 3,308 |
| Renous | 7,270 | 6,908 | 5,242 | 5,678 | 9,049 | 6,825 |
| Dungarvon | 2,639 | 1,903 | 2,664 | 3,237 | 5,442 | 4,417 |
| Cains | 2,216 | 3,968 | 5,679 | 3,981 | 4,921 | 5,567 |
| Black | 163 | 80 | 109 | 43 | 116 | 91 |
| Rocky Brook | 25 | 26 | 31 | 52 | 16 | 45 |
| Clearwater Brook | 43 | 0 | 70 | 52 | 80 | 181 |
| Bartholomew | 0 | 17 | 0 | 26 | 24 | 21 |
| North Pole | 69 | 0 | 39 | 70 | 143 | 77 |
| SUBTOTAL | 74,195 | 75,633 | 86,558 | 79,016 | 137,924 | 120,625 |
| Bartibogue | 483 | 536 | 1,125 | 542 | 1,278 | 1,169 |
| Tabusintac | 1,147 | 902 | 453 | 647 | 1,799 | 1,341 |
| Big Tracadie | 327 | 8 | 257 | 271 | 598 | 460 |
| Caraquet | 17 | 62 | 7 | 175 | 283 | 287 |
| Pokemouche | 0 | 0 | 0 | 0 | 32 | 0 |
| SUBTOTAL | 1,974 | 1,508 | 1,842 | 1,635 | 3,990 | 3,257 |
| Big Salmon River | 2,104 | 1,599 | 890 | 2,511 | 2,821 | 427 |
| Alma | 17 | 0 | 0 | 0 | 62 | 0 |
| Little(Coverdale River) | 0 | 0 | 70 | 17 | 0 | 21 |
| Petitcodiac | 25 | 0 | 164 | 0 | 0 | 91 |
| SUBTOTAL | 2,146 | 1,599 | 1,124 | 2,528 | 2,883 | 539 |
| Saint John | 10,884 | 8,508 | 8,671 | 10,762 | 13,920 | 13,761 |
| Nashwaak | 9,021 | 6,327 | 6,835 | 9,441 | 12,306 | 12,387 |
| Tobique | 8,245 | 7,436 | 7,250 | 9,231 | 8,115 | 12,194 |
| Little Salmon | 34 | 26 | 375 | 253 | 1,362 | 455 |
| Kennebecasis | 2,639 | 1,590 | 1,406 | 2,030 | 3,831 | 3,388 |
| Hammond | 2,665 | 1,054 | 2,562 | 2,467 | 3,631 | 2,784 |
| SUBTOTAL | 33,488 | 24,941 | 27,099 | 34,184 | 43,165 | 44,969 |
| Magaguadavic | 560 | 446 | 343 | 262 | 954 | 287 |
| Didgequash | 181 | 143 | 93 | 26 | 24 | 98 |
| Saint Croix | 379 | 875 | 382 | 61 | 833 | 126 |
| SUBTOTAL | 1,120 | 1,464 | 818 | 349 | 1,811 | 511 |
| Restigouche | 4,416 | 5,577 | 5,531 | 8,085 | 10,989 | 8,084 |
| Upsalquitch | 2,156 | 2,332 | 2,781 | 2,371 | 3,070 | 3,626 |
| Kedgwick | 664 | 2,010 | 1,195 | 813 | 1,142 | 2,097 |
| SUBTOTAL | 7,236 | 9,919 | 9,507 | 11,269 | 15,201 | 13,807 |
| Jacquet | 508 | 205 | 625 | 201 | 2,299 | 750 |
| Nepisiguit | 7,365 | 7,498 | 6,578 | 5,433 | 12,393 | 9,816 |
| Tetagouche | 69 | 62 | 7 | 0 | 55 | 77 |
| Middle | 0 | 89 | 101 | 0 | 323 | 112 |
| SUBTOTAL | 7,942 | 7,854 | 7,311 | 5,634 | 15,070 | 10,755 |
| Kouchibouguac | 232 | 366 | 164 | 218 | 858 | 602 |
| Buctouche | 94 | 53 | 31 | 192 | 213 | 308 |
| SUBTOTAL | 326 | 419 | 195 | 410 | 1,071 | 910 |
| All Other Rivers | 1,535 | 1,056 | 742 | 2,520 | 3,698 | 707 |
| TOTALS | 129,962 | 124,392 | 135,196 | 137,545 | 224,813 | 196,080 |

TABLE 3: Atlantic salmon sport catch and effort statistics, 1983-1991

| KELT SEASON (APRIL 15- MAY 15) | | | | | | BRIGHT SEASON (JUNE 1 - OCTOBER 15) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| YEAR | ROD-DAYS | GRILSE KEPT | GRILSE RELEASED | MSW SALMON RELEASED | CATCH PER ROD-DAY (ALL KELT) | ROD-DAYS | GRILSE KEPT | GRILSE RELEASED | MSW SALMON RELEASED | CATCH FOR ROD-DAY (ALL BRIGHTS) |
| 1991 | 12,439 | 2,584 | 3,161 | 3,196 | 0.72 | 187,977 | 17,283 | 3,501 | 10,650 | 0.17 |
| 1990 | 17,249 | 4,302 | 4,435 | 6,037 | 0.86 | 207,564 | 29,420 | 7,346 | 16,231 | 0.26 |
| 1989 | 6,508 | 5,640 | 9,566 | 7,756 | 3.53 | 130,978 | 34,816 | 8,518 | 22,127 | 0.50 |
| 1988 | 5,381 | 4,494 | 6,703 | 7,182 | 3.41 | 129,815 | 42,907 | 10,503 | 19,442 | 0.56 |
| 1987 | 11,180 | 2,888 | 7,296 | 5,723 | 1.42 | 113,212 | 31,777 | 10,597 | 20,295 | 0.55 |
| 1986 | 7,631 | 2,532 | 5,217 | 6,966 | 1.93 | 122,331 | 39,808 | 9,333 | 25,316 | 0.61 |
| 1985 | 4,196 | 2,404 | 1,098 | 3,809 | 1.74 | 99,859 | 27,114 | 3,963 | 17,815 | 0.48 |
| 1984 | 2,444 | 1,943 | 661 | 1,020 | 1.48 | 101,836 | 27,653 | 851 | 14,479 | 0.42 |
| 1983 | 6,690 | 2,400 | 1,924 | 1,080 | 0.81 | 177,580 | 12,950 | 2,133 | 4,690 | 0.11 |

**TABLE 4. Grilse harvested and large salmon released**
**1991 New Brunswick Atlantic salmon sport fishery**

| River | Kelt or Black Salmon | | Early Bright Salmon | | Late Bright Salmon | | Total Bright Salmon | |
|---|---|---|---|---|---|---|---|---|
| | Grilse Harvested | Large Salmon Released | Grilse Harvested | Large Salmon Released | Grilse Harvested | Large Salmon Released | Grilse Harvested | Large Salmon Released |
| Main SW Miramichi | 1,909 | 2,397 | 4,195 | 2,312 | 2,273 | 1,300 | 6,468 | 3,612 |
| Little SW Miramichi | 136 | 198 | 823 | 554 | 344 | 235 | 1,167 | 789 |
| Northwest Miramichi | 239 | 325 | 1,360 | 526 | 190 | 87 | 1,550 | 613 |
| Sevogle | 7 | 0 | 289 | 95 | 50 | 22 | 339 | 117 |
| Renous | 49 | 21 | 583 | 141 | 146 | 72 | 729 | 213 |
| Dungarvon | 0 | 7 | 423 | 254 | 28 | 42 | 451 | 296 |
| Cains | 16 | 49 | 66 | 42 | 479 | 421 | 545 | 463 |
| Black | 0 | 11 | 0 | 0 | 0 | 0 | 0 | 0 |
| Rocky Brook | 0 | 0 | 8 | 0 | 0 | 0 | 8 | 0 |
| Clearwater Brook | 0 | 0 | 22 | 8 | 14 | 22 | 36 | 30 |
| Bartholomew River | 0 | 0 | 0 | 0 | 7 | 0 | 7 | 0 |
| North Pole | 0 | 0 | 0 | 14 | 0 | 0 | 0 | 14 |
| Northwest Millstream | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Burnthill | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Black | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Napan | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Barnaby | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| SUBTOTAL | 2,356 | 2,997 | 7,769 | 3,946 | 3,531 | 2,201 | 11,300 | 6,147 |
| Bartibogue | 42 | 28 | 14 | 7 | 7 | 105 | 21 | 112 |
| Tabusintac | 109 | 87 | 14 | 14 | 56 | 70 | 70 | 84 |
| Tracadie River | 42 | 35 | 0 | 0 | 7 | 21 | 7 | 21 |
| Caraquet | 0 | 0 | 0 | 0 | 21 | 28 | 21 | 28 |
| Pokemouche | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| SUBTOTAL | 193 | 150 | 28 | 21 | 91 | 224 | 119 | 245 |
| Big Salmon River | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Alma | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Little(Coverdale River) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Petitcodiac | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pollett River | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Point Wolfe | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Black | 0 | 0 | 7 | 0 | 14 | 0 | 21 | 0 |
| SUBTOTAL | 0 | 0 | 7 | 0 | 14 | 0 | 21 | 0 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Saint John | 0 | 14 | 707 | 452 | 140 | 56 | 847 | 508 |
| Nashwaak | 7 | 7 | 371 | 253 | 373 | 238 | 744 | 491 |
| Tobique | 7 | 0 | 799 | 625 | 191 | 92 | 990 | 717 |
| Salmon (Chipman) | 0 | 0 | 0 | 0 | 7 | 28 | 7 | 28 |
| Kennebecasis | 0 | 0 | 14 | 21 | 28 | 28 | 42 | 49 |
| Hammond | 0 | 0 | 42 | 56 | 63 | 147 | 105 | 203 |
| Nerepis | 0 | 0 | 7 | 0 | 28 | 14 | 35 | 14 |
| Canaan | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Little River | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Gaspereau | 0 | 0 | 0 | 0 | 28 | 28 | 28 | 28 |
| Keswick | 0 | 0 | 0 | 0 | 14 | 0 | 14 | 0 |
| Nackawic | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Eel | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Meduxnekeg | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Becaguimec | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Presque Isle | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Aroostook | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Salmon (Victoria) | 0 | 0 | 98 | 7 | 0 | 7 | 105 | 14 |
| SUBTOTAL | 14 | 21 | 2,038 | 1,414 | 879 | 638 | 2,917 | 2,052 |
| Magaguadavic | 0 | 0 | 0 | 0 | 7 | 0 | 7 | 0 |
| Digdeguash | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Saint Croix | 0 | 0 | 7 | 7 | 0 | 0 | 7 | 7 |
| New | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pocologan | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Waweig | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Dennis | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| SUBTOTAL | 0 | 0 | 7 | 7 | 7 | 0 | 14 | 7 |
| Restigouche | 0 | 0 | 811 | 851 | 0 | 8 | 811 | 859 |
| Upsalquitch | 14 | 0 | 613 | 301 | 14 | 49 | 627 | 350 |
| Kedgwick | 0 | 0 | 194 | 321 | 0 | 0 | 194 | 321 |
| Patapedia | 0 | 0 | 7 | 15 | 0 | 0 | 7 | 15 |
| Gounamitz | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| SUBTOTAL | 14 | 0 | 1625 | 1488 | 14 | 57 | 1639 | 1545 |
| Jacket | 0 | 0 | 21 | 14 | 42 | 42 | 63 | 56 |
| Nepisiguit | 0 | 14 | 553 | 301 | 482 | 227 | 1035 | 528 |
| Tetagouche | 0 | 0 | 0 | 0 | 14 | 7 | 14 | 7 |
| Middle | 0 | 0 | 7 | 0 | 0 | 0 | 7 | 0 |
| Charlo | 0 | 0 | 0 | 0 | 14 | 0 | 14 | 0 |
| Benjamin | 0 | 14 | 14 | 0 | 14 | 21 | 28 | 21 |
| Eel | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| SUBTOTAL | 0 | 28 | 595 | 315 | 566 | 297 | 1161 | 612 |
| Kouchibouguac | 0 | 0 | 7 | 0 | 84 | 28 | 91 | 28 |
| Buctouche | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| SUBTOTAL | 0 | 0 | 7 | 0 | 84 | 28 | 91 | 28 |
| All Other Rivers | 7 | 14 | 7 | 0 | 14 | 14 | 21 | 28 |
| TOTALS | 2584 | 3196 | 12083 | 7191 | 5200 | 3459 | 17283 | 10664 |

TABLE. 5 Catches of Atlantic salmon (approx. No.'s Fish) in Canada by all fisheries and by the Newfoundland and Labrador commercial fishery, 1960-1991.

| | Small Salmon * NFLD | | | Large Salmon NFLD | | | Small and Large Salmon | | |
|---|---|---|---|---|---|---|---|---|---|
| Year | Canada No. | Comm. Catch No. | (% of Can. Prod.) | Canada No. | Comm. Catch No. | (% of Can. Prod.) | Canada No. | Comm. Catch No. | (% of Can. Prod.) |
| 1960 | | | | | | | 538,481 | | |
| 1961 | | | | | | | 521,347 | | |
| 1962 | | | | | | | 566,137 | | |
| 1963 | | | | | | | 612,904 | | |
| 1964 | | | | | | | 681,407 | | |
| 1965 | | | | | | | 696,886 | | |
| 1966 | | | | | | | 780,020 | | |
| 1967 | | | | | | | 942,904 | | |
| 1968 | | | | | | | 695,239 | | |
| 1969 | | | | | | | 725,209 | | |
| 1970 | 418,550 | | | 343,640 | | | 762,190 | | |
| 1971 | 280,500 | | | 326,040 | | | 606,540 | | |
| 1972 | 306,900 | | | 264,220 | | | 571,120 | | |
| 1973 | 430,650 | | | 363,220 | | | 793,870 | | |
| 1974 | 522,500 | | | 349,580 | | | 872,080 | | |
| 1975 | 501,600 | 412,500 | (82) | 346,060 | 284,680 | (82) | 847,660 | 697,180 | (82) |
| 1976 | 431,750 | 347,600 | (81) | 378,620 | 303,600 | (80) | 810,370 | 651,200 | (80) |
| 1977 | 364,100 | 293,150 | (81) | 414,260 | 308,880 | (75) | 778,360 | 602,030 | (77) |
| 1978 | 176,000 | 156,700 | (86) | 269,500 | 199,540 | (74) | 445,500 | 350,240 | (79) |
| 1979 | 320,100 | 271,700 | (85) | 155,100 | 108,900 | (70) | 475,200 | 380,600 | (80) |
| 1980 | 504,350 | 444,950 | (88) | 387,860 | 284,900 | (73) | 892,210 | 729,850 | (82) |
| 1981 | 449,900 | 371,800 | (83) | 356,180 | 271,260 | (76) | 806,080 | 643,060 | (80) |
| 1982 | 358,000 | 322,850 | (90) | 240,000 | 163,460 | (68) | 598,000 | 486,310 | (81) |
| 1983 | 265,000 | 229,350 | (87) | 201,000 | 134,420 | (67) | 466,000 | 363,770 | (78) |
| 1984 | 234,000 | 182,600 | (78) | 143,000 | 102,300 | (72) | 377,000 | 284,900 | (76) |
| 1985 | 333,084 | 258,500 | (78) | 122,621 | 90,420 | (74) | 455,705 | 348,920 | (77) |
| 1986 | 417,269 | 334,400 | (80) | 162,305 | 136,840 | (84) | 579,574 | 471,240 | (81) |
| 1987 | 435,799 | 386,100 | (89) | 203,731 | 171,600 | (84) | 639,530 | 557,700 | (87) |
| 1988 | 372,178 | 281,050 | (76) | 137,637 | 101,420 | (84) | 509,815 | 382,470 | (75) |
| 1989 | 304,620 | 237,050 | (78) | 135,484 | 95,920 | (71) | 440,104 | 332,970 | (76) |
| 1990 | 222,944 | 145,750 | (65) | 101,910 | 70,840 | (70) | 324,854 | 216,590 | (67) |
| 1991 | 174,900 | 118,800 | (68) | 72,200 | 40,480 | (56) | 247,100 | 159,280 | (64) |

* Small salmon represent one-sea winter fish destined to return grilse the same year as MSW salmon in subsequent years.

** Preliminary

TABLE 6. Estimated Greenland commercial fishery catch of North American Atlantic Salmon, 1975-1991; these fish were destined to return to Canadian or Maine rivers one year later than the capture year.

| YEAR | CATCH (APPROX. NOS. OF FISH) |
|---|---|
| 1975 | 280,657 |
| 1976 | 158,114 |
| 1977 | 200,828 |
| 1978 | 117,828 |
| 1979 | 205,857 |
| 1980 | 217,485 |
| 1981 | 223,142 |
| 1982 | 209,628 |
| 1983 | 38,628 |
| 1984 | 47,457 |
| 1985 | 130,428 |
| 1986 | 169,085 |
| 1987 | 175,685 |
| 1988 | 125,456 |
| 1989 | 59,311 |
| 1990 | 53,507 |
| 1991 | 96,000 |
| 1992 | fishery begins Aug. 1/92 |

Table 7. Angler catch of grilse and MSW salmon above and below Mactaquac Dam (Saint John River), 1990

| | Saint John River | | Below and Above Mactaquac |
|---|---|---|---|
| | Below Mactaquac | Above Mactaquac | |
| No. Rod Days | | | |
| - Resident | 9,156 | 4,253 | 13,412 |
| - Non-Resident | 349 | 0 | 349 |
| - Both | 9,505 | 4,253 | 13,761 |
| Grilse Kept | 615 | 232 | 847 |
| MSW Salmon Released | 441 | 67 | 508 |
| Grilse Released | 59 | 11 | 70 |
| Total Fish Kept and Released | 1,115 | 310 | 1,425 |
| Catch per Rod-Day (all fish) | 0.12 | 0.07 | 0.10 |

TABLE 8. Comparison of preliminary and final catch and effort statistics, 1991 Atlantic salmon total bright season (June 1 - October 21)

| Selected River | Bright Season Rod Days | | Total Bright Season | | | |
|---|---|---|---|---|---|---|
| | | | Grilse Harvest | | MSW Released | |
| | Prelim. | Final | Prelim. | Final | Prelim. | Final |
| MSW Miramichi | 52,690 | 58,047 | 5,590 | 6,468 | 2,880 | 3,612 |
| LSW Miramichi | 11,750 | 12,973 | 1,000 | 1,167 | 510 | 789 |
| NW Miramichi | 14,900 | 18,455 | 1,320 | 1,550 | 530 | 613 |
| Sevogle | 2,830 | 3,287 | 270 | 339 | 80 | 117 |
| Renous | 6,340 | 6,727 | 760 | 729 | 220 | 213 |
| Dungarvon | 4,050 | 4,340 | 410 | 451 | 340 | 296 |
| Cains | 5,090 | 5,353 | 530 | 545 | 370 | 463 |
| Subtotal | 97,650 | 106,182 | 9,880 | 11,249 | 8,320 | 6,103 |
| Bartibogue | 550 | 896 | 20 | 21 | 50 | 112 |
| Tabusintac | 1,040 | 847 | 90 | 70 | 120 | 84 |
| Big Tracadie | 350 | 327 | 10 | 7 | 20 | 21 |
| Subtotal | 1,940 | 2,070 | 120 | 98 | 190 | 217 |
| St. John | 12,500 | 13,621 | 850 | 847 | 340 | 508 |
| Nashwaak | 12,110 | 12,254 | 780 | 744 | 340 | 491 |
| Tobique | 9,780 | 12,180 | 760 | 990 | 650 | 717 |
| Kennebecasis | 2,670 | 3,388 | 30 | 42 | 20 | 49 |
| Hammond | 2,480 | 2,784 | 30 | 105 | 140 | 203 |
| Subtotal | 39,620 | 44,227 | 2,450 | 2,728 | 1,490 | 1,968 |
| Restigouche | 7,170 | 8,084 | 710 | 811 | 750 | 859 |
| Upsalqwitch | 3,612 | 3,612 | 480 | 627 | 360 | 350 |
| Kedgwick | 1,350 | 2,097 | 160 | 194 | 190 | 321 |
| Subtotal | 11,910 | 13,793 | 1,350 | 1,632 | 1,300 | 1,530 |
| Nepisiguit | 7,370 | 9,781 | 780 | 1,035 | 230 | 528 |
| TOTALS | 158,490 | 176,053 | 14,580 | 16,742 | 11,530 | 10,346 |

Table 9. Commerical quotas and catches of Atlantic salmon for Newfoundland - Labrador Salmon Fishing Areas (SFA's) 1-14, 1990-1991.

| Salmon Fishing Area | No. Fishermen 1990 | Quota(Metric Tonns) 1990 | | 1991 | | Atlantic Salmon Catch Approx. numbers of fish | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | Quota Set | Catch | Quota Set | Catch | Small | | Large | |
| | | | | | | 1990 | 1991 | 1990 | 1991 |
| Labrador | | | | | | | | | |
| 1 | 151 | 80 | 30 | 80 | 7 | 4,452 | 1,000 | 4,368 | 1,000 |
| 2 | 349 | 200 | 151 | 200 | 79 | 25,062 | 20,044 | 20,269 | 7,600 |
| Insular Newfoundland | | | | | | | | | |
| 3 | 427 | 155 | 135 | 120 | 108 | 22,917 | 27,902 | 19,104 | 11,733 |
| 4 | 669 | 100 | 92 | 78 | 52 | 32,024 | 13,619 | 6,944 | 5,612 |
| 5 | 248 | 25 | 15 | 25 | 18 | 4,899 | 6,600 | 1,757 | 1,507 |
| 6 | 234 | 20 | 12 | 20 | 19 | 3,835 | 6,600 | 1,106 | 1,660 |
| 7 | 212 | 15 | 6 | 15 | 12 | 1,346 | 2,694 | 649 | 1,320 |
| 8 | 169 | 10 | 3 | 10 | 7 | 849 | 2,538 | 332 | 667 |
| 9 | 38 | 7 | 3 | 7 | 5 | 1,162 | 2,972 | 189 | 190 |
| 10 | 150 | 25 | 23 | 25 | 18 | 9,406 | 7,135 | 1,913 | 1,650 |
| 11 | 172 | 25 | 30 | 25 | 28 | 5,000 | 4,512 | 4,270 | 4,272 |
| 12 | CLOSED IN 1984 | | | | | | | | |
| 13 | 107 | 35 | 43 | 35 | 29 | 16,638 | 15,687 | 3,239 | 872 |
| 14 | 249 | 50 | 44 | 50 | 52 | 12,214 | 12,862 | 3,608 | 5,090 |
| Total | 3,175 | 757 | 587 | 690 | 434 | 141,788 | 124,265 | 67,748 | 43,173 |